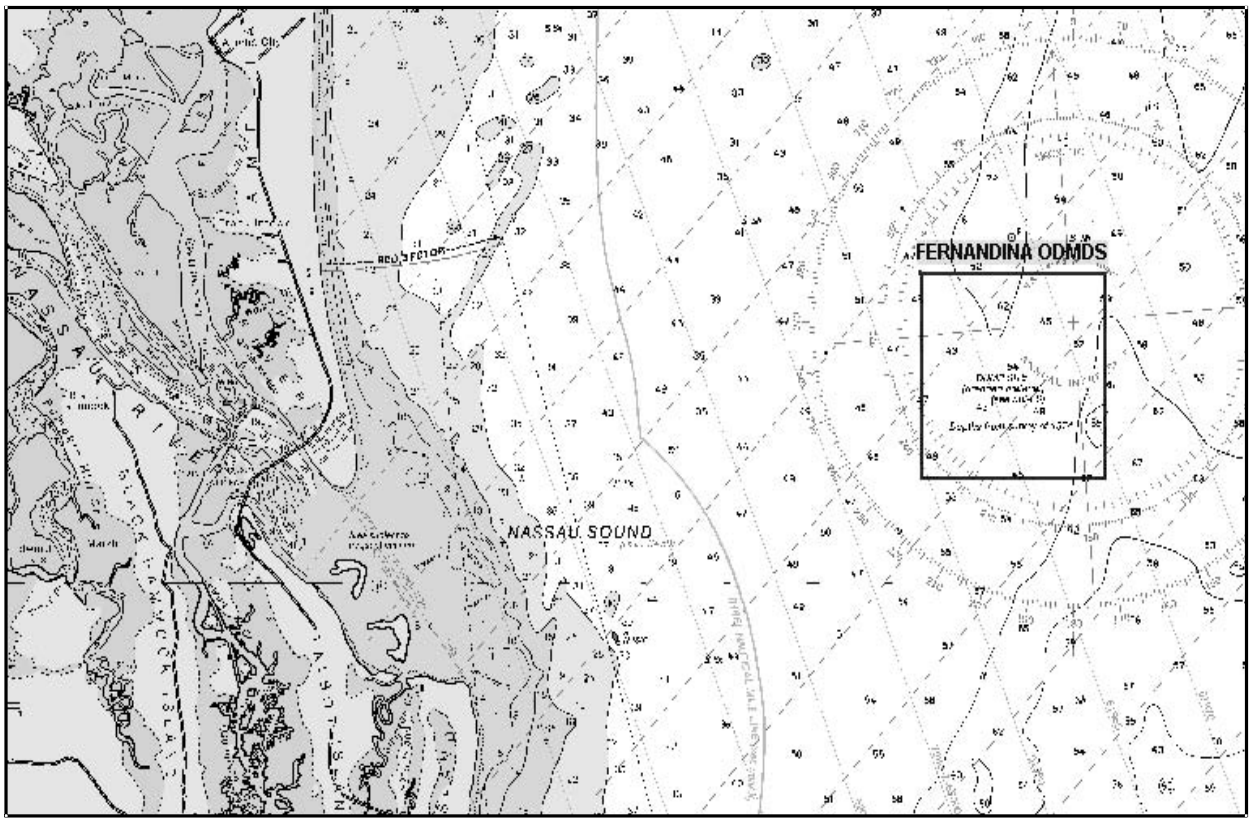
DECEMBER 1998

EPA

FERNANDINA
OCEAN DREDGED MATERIAL DISPOSAL SITE

U.S. Army Corps
of Engineers

SITE MANAGEMENT AND MONITORING PLAN



The following Site Management and Monitoring Plan for the Fernandina ODMDS has been developed and agreed to pursuant to the Water Resources Development Act Amendments of 1992 (WRDA 92) to the Marine Protection, Research, and Sanctuaries Act of 1972 for the management and monitoring of ocean disposal activities, as resources allow, by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers.

17 DEC 98
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This plan is effective from the date of signature for a period not to exceed 10 years. The plan shall be reviewed and revised more frequently if site use and conditions at site indicate a need for revision.

FERNANDINA ODMDS
SITE MANAGEMENT AND MONITORING PLAN
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INTRODUCTION

It is the responsibility of the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (COE) under the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 to manage and monitor each of the Ocean Dredged Material Disposal Sites (ODMDSs) designated by the EPA pursuant to Section 102 of MPRSA. MPRSA, the Water Resources Development Act (WRDA) of 1992, and a Memorandum of Agreement between EPA and COE require the development of a site management and monitoring plan (SMMP) to specifically address the disposal of dredged material at the Fernandina ODMDS. Upon finalization of the SMMP, SMMP provisions shall be requirements for all dredged material disposal activities at the site. All Section 103 (MPRSA) ocean disposal permits or evaluations shall be conditioned as necessary to assure consistency with the SMMP.

Site Management and Monitoring Plan Team. An interagency SMMP team has been established to assist EPA and COE in finalizing this SMMP. The team consists of the following agencies and their respective representatives:

Jacksonville District Corps of Engineers	State of Florida
EPA Region IV	State of Georgia
Fernandina Ocean Highway and Port Authority	U.S. Navy
National Marine Fisheries Service (NMFS)	

Other agencies such as the U.S. Coast Guard and the Fish and Wildlife Service (FWS) may be asked to participate where appropriate. The SMMP team will assist EPA in evaluating existing monitoring data, the type of disposal (i.e., O&M vs. construction), the type of material (i.e., sand vs. mud), location of placement within the ODMDS and quantity of material. The team will assist EPA and COE on deciding on appropriate monitoring techniques, the level of monitoring, and the significance of results and potential management options.

SITE MANAGEMENT

Section 228.3 of the Ocean Dumping Regulations (40 CFR 220-229) states: "Management of a site consists of regulating times, rates, and methods of disposal and quantities and types of materials disposed of; developing and maintaining effective ambient monitoring programs for the site; conducting disposal site evaluation studies; and recommending modifications in site use and/or designation." This plan may be modified if it is determined that such changes are warranted as a result of information obtained during the monitoring process.

Disposal Site Characteristics. The Fernandina ODMDS was designated by EPA pursuant to Section 102(c) of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, as suitable for the ocean disposal of dredged material. EPA promulgated the final rule on February 23, 1987, effective March 25, 1987. The Fernandina ODMDS is located at the following coordinates:

(NAD 27 Geographic)	(NAD 83 Florida East (0901) State Plane - Feet)
30° 33'00" N 81° 16'52" W	N 567740 E 2260152
30° 31'00" N 81° 16'52" W	N 567710 E 2248028
30° 31'00" N 81° 19'08" W	N 555814 E 2248060
30° 33'00" N 81° 19'08" W	N 555848 E 2260183

The Fernandina ODMDS has an area of about four-square nautical miles. Depths within the ODMDS range from 40.5 to 67.7 feet below m.l.l.w. (based on an March 1998 bathymetric survey). The bathymetry is gently sloping approximately one-half mile from each side of the east and west borders of the ODMDS; these slopes create a slight depression approximately 1 mile wide running North-to-South for the full two-mile length of the ODMDS.

Management Objectives. There are three primary objectives in the management of each ODMDS. These are:

- Protection of the marine environment;
- Beneficial use of dredged material whenever practical; and
- Documentation of disposal activities at the ODMDS.

The following sections provide the framework for meeting these objectives to the extent possible.

Material Volumes. The Fernandina ODMDS has been used for the ocean disposal of dredged material since 1987. Material disposed prior to 1987 was disposed at an interim site located north of the Fernandina ODMDS, near the St. Mary's Entrance Channel. The interim site designation was canceled by the designation of the current ODMDS on March 25, 1987. Table 1 outlines the history of disposal of material from Fernandina Harbor and Kings Bay Entrance Channel at the Fernandina ODMDS.

At Fernandina Harbor, the Jacksonville District Corps of Engineers has projected disposal on the average of 600,000 cubic yards of dredged material every year from maintenance of the Kings Bay Entrance Channel, and an average of 350,000 cubic yards every three years from maintenance of the Inner Channel and Turning Basin. Additional potential projects that could utilize the ODMDS as a disposal site could include berthing areas adjacent to the federal project by the Fernandina Ocean & Highway Port Authority, the Fernandina Beach City Marina, or private dredging projects that secure appropriate State and Federal approvals.

Table 1. Volume of Dredged Material Placed in the Fernandina ODMDS

	DREDGED MATERIAL QUANTITY - CUBIC YARDS		
YEAR	FERNANDINA HARBOR Inner Channel & Turning Basin	KINGS BAY Entrance Channel	YEAR TOTAL
1987	0	0	0
1988	0	6,320,029	6,320,029
1989	0	156,425	156,425
1990	0	886,786	886,786
1991	0	297,497	297,497
1992	0	33,037	33,037
1993	0	495,875	495,875
1994	943,183	222,538	1,165,721
1995	0	215,349	215,349
1996	0	606,097	606,097
1997	0	162,667	162,667
1998		225,853	225,853
Total	943,183	9,622,153	10,565,336

Material Suitability. Bottom sediments differ little through the length of this project. Material from the project areas are described as follows: 1) Fernandina Harbor Inner Channel & Turning Basin--predominantly gray slightly silty fine sand and gray silty fine sand; 2) Kings Bay Entrance Channel--predominantly dark brown and brown/gray slightly silty fine brown sand with some shells.

The disposition of any significant quantities of beach compatible sand from future projects will be determined during permitting activities for any such projects. It is expected that the State of Florida will exercise its authority and responsibility, regarding beach nourishment, to the full extent during any future permitting activities. Utilization of any significant quantities of beach compatible dredged material for beach nourishment is strongly encouraged and supported by EPA. Disposal of non-beach quality sand should be planned to allow the material to be placed so that it will be within or accessible to the sand-sharing system, to the maximum extent practical, and following the provisions of the Clean Water Act. Disposal of coarser material, such as rubble, should be coordinated with the State of Florida and EPA to avoid unintended impacts in the ODMDS and to promote possible beneficial uses of the

material.

In addition, the suitability of dredged material for ocean disposal must be verified by the COE and agreed to by EPA prior to disposal. Verification will be valid for three years from the time last verified. Verification will involve: 1) a case-specific evaluation against the exclusion criteria (40 CFR 227.13(b)), 2) a determination of the necessity for bioassay (toxicity and bioaccumulation) testing for non-excluded material based on the potential for contamination of the sediment since last tested, and 3) carrying out the testing (where needed) and determining that the non-excluded, tested material is suitable for ocean disposal.

Documentation of verification will be completed prior to use of the site. Documentation for material suitability for dredging events proposed for ocean disposal more than 5 years since last verified will be a new 103 evaluation and public notice. Documentation for material suitability for dredging events proposed for ocean disposal less than 5 years but more than 3 years since last verified will be an exchange of letters between the COE and EPA.

Should EPA conclude that reasonable potential exists for contamination to have occurred, acceptable testing will be completed prior to use of the site. Testing procedures to be used will be those delineated in the 1991 EPA/COE Dredged Material Testing Manual and 1993 Regional Implementation Manual. This includes how dredging operations will be subdivided into project segments for sampling and analysis. Only material determined to be suitable through the verification process by the COE and EPA will be placed at the Fernandina ODMDS.

Time of disposal. At present no restrictions have been determined to be necessary for disposal related to seasonal variations in ocean current or biotic activity. As monitoring results are compiled, should any such restrictions appear necessary, disposal activities will be scheduled so as to avoid adverse impacts. Between December 1 and March 31 monitoring and precautions necessary to protect whales, as described in the next paragraph, are required. Additionally, if new information indicates that endangered or threatened species are being adversely impacted, restrictions may be incurred.

Disposal Technique. No specific disposal technique is required for this site. However, in order to protect whales, NMFS requires monitoring by endangered species observers with at-sea large whale identification experience to conduct daytime observations for whales between December 1 and March 31. During daylight hours, the dredge operator must take necessary precautions to avoid whales. During evening hours or when there is limited visibility due to fog or sea states of greater than Beaufort 3, the vessel must slow down to 5 knots or less when traversing between areas if whales have been spotted within 15nm of the vessel's path within the previous 24 hours. In addition, the dredge operator will maintain a 500 yard buffer zone

between the vessel and any whale.

Additionally, standard surveillance and evasive measures to protect sea turtles and marine mammals shall be employed during all disposal operations at the ODMDS.

Disposal Location. Disposal should occur within 3,000 feet of the center of the Fernandina ODMDS. This release zone may be modified based on results from post-disposal bathymetric surveys. Project specific disposal zones may be required where Water Quality Criteria Limiting Permissible Concentrations are of concern.

Permit and Contract Conditions. The disposal monitoring and post-disposal monitoring requirements described under Site Monitoring will be included with the management requirements described in this section as permit conditions on all MPRSA Section 103 permits and will be incorporated in the contract language for all federal projects. A summary of the management and monitoring requirements to be included are listed in Table 2.

Table 2. Summary of Permit and Contract Conditions

Condition	Reference
Dredged Material Suitability and Term of Verification	Fernandina ODMDS SMMP page 3 and 4 Regional Implementation Manual
Disposal Zone	Fernandina ODMDS SMMP page 5
Right Whale Avoidance	Fernandina ODMDS SMMP page 4 and 5
Pre and Post Bathymetric Surveys	Fernandina ODMDS SMMP page 6 and 8
Disposal Monitoring	Fernandina ODMDS SMMP page 8
Reporting Requirements	Fernandina ODMDS SMMP page 12

SITE MONITORING

The MPRSA establishes the need for including a monitoring program as part of the Site Management Plan. Site monitoring is conducted to ensure the environmental integrity of a disposal site and the areas surrounding the site and to verify compliance with the site designation criteria, any special management conditions, and with permit requirements. Monitoring programs should be flexible, cost effective, and based on scientifically sound procedures and methods to meet site-specific monitoring needs. The intent of the program is to provide the following:

(1) Information indicating whether the disposal activities are occurring in compliance with the permit and site restrictions; and/or

(2) Information concerning the short-term and long-term environmental impacts of the disposal; and/or

(3) Information indicating the short-term and long-term fate of materials disposed of in the marine environment.

The main purpose of a disposal site monitoring program is to determine whether dredged material site management practices, including disposal operations, at the site need to be changed to avoid significant adverse impacts.

Baseline Monitoring. Disposal has occurred at the present site since 1987. The results of investigations presented in the designation EIS and subsequent surveys listed in Table 3 will serve as the main body of data for the monitoring of the impacts associated with the use of the Fernandina ODMDS.

A bathymetric survey will be conducted by the COE or site user within one year prior to dredging cycle or project disposal. Bathymetric surveys will be used to monitor the disposal mound to insure a navigation hazard is not produced, to assist in verification of material placement, to monitor bathymetry changes and trends and to insure that the site capacity is not exceeded, ie., the mound does not exceed the site boundaries. The number and length of transects required will be sufficient to encompass the ODMDS and a 0.25 nautical mile wide area around the site. The surveys will be taken along lines spaced at 500-foot intervals or less. Accuracy of the surveys will be +/- 0.5 feet. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing either a microwave line of site system or differential global positioning system. The vertical datum shall be mean lower low water (m.l.l.w.) and the horizontal datum Florida State Plane or Geographic (NAD 1983 or NAD 1927). No additional pre-disposal monitoring at this site is required.

Table 3. Surveys Conducted at the Fernandina ODMDS

Survey Title	Conducted by	Date	Purpose	Conclusion
Field Survey of the Fernandina Harbor Candidate ODMDS	Jacksonville District COE, et al	*1985*	Site Characterization and baseline for site designation and future surveys.	Site designated
Final Gamma Radiation Surveillance of Dredged Spoil Site Sediments at Fernandina Beach	U.S. EPA Region 4 and Center for Applied Isotope Studies	1987	Baseline for future surveys.	No significant difference between stations inside site boundaries and stations outside site boundaries.
Fernandina Harbor, Florida, ODMDS, Benthic Communities	U.S. EPA Region 4 and Vittor & Associates	1989	Benthic infaunal survey.	Infaunal communities were generally similar in 1985 and 1989, although species abundance was generally higher. Some changes occurred in the relative abundance of dominant taxa, but most taxa that were dominant in 1985 were also dominant in 1989.
Post disposal Areal Mapping of Sediment Chemistry at the Fernandina ODMDS	U.S. EPA Region 4 and Center for Applied Isotope Studies	1989	Conduct sediment mapping of site to determine location of dredged material.	Identified two mounds in eastern half of ODMDS as dredged material.

Disposal Monitoring. For all disposal activities, the dredging contractor will be required to prepare and operate under an approved electronic verification plan for all disposal operations. As part of this plan, the contractor will provide an automated system that will continuously track (1 to 5 minute intervals) the horizontal location and draft condition (vertical) of the disposal vessel from the point of dredging to the disposal area, and return to the point of dredging. Required digital data are as follows:

(a) Date;

(b) Time;

(c) Vessel Name;

(d) Dump Number;

(e) Map Number on which dump is plotted (if appropriate);

(f) Beginning and ending coordinates of the dredging area for each load (source of dredged material);

(g) Actual location (in degrees and minutes of longitude and latitude) at points of initiation and completion of disposal event;

(h) Brief description of material disposed;

(I) Volume of material disposed; and

(j) Disposal technique used.

This information shall be available to the COE on a daily basis.

Post Discharge Monitoring. As a follow-up to the pre-disposal bathymetric survey, the COE or other site user will conduct a bathymetric survey within 60 days after disposal project completion. The number of transects required will be the same as in the pre-disposal survey. Bathymetric survey results will be used to insure that unacceptable mounding is not occurring and to aid in environmental effects monitoring.

Material Tracking and Disposal Effects Monitoring. Surveys can be used to address possible changes in bathymetric, sedimentological, chemical, and biological aspects of the ODMDS and surrounding area as a result of the disposal of dredged material at the site.

Summary of Results of Past Monitoring Surveys

Surveys conducted at the Fernandina ODMDS are listed in Table 3. The sediment mapping survey conducted in the spring of 1989 identified two mounds in the eastern half of the ODMDS as dredged material. The benthic surveys conducted in 1985 and 1989 were compared. Infaunal communities were generally similar in 1985 and 1989, although species abundance was generally higher. Some changes occurred in the relative abundance of dominant taxa, but most taxa that were dominant in 1985 were also dominant in 1989.

Future Monitoring Surveys

Based on the type and volume of material disposed and impacts of concern, various monitoring surveys can be used to determine if and where the disposed material is moving, and what environmental effect the material is having on the site and adjacent areas.

A summary of the monitoring strategies for the Fernandina ODMDS and thresholds for management actions are presented in Table 4. Should future disposal at the Fernandina ODMDS result in unacceptable adverse impacts, further studies may be required to determine the persistence of these impacts, the extent of the impacts within the marine system, and/or possible means of mitigation. In addition, the management plan presented may require revision based on the outcome of any monitoring program.

Table 4. Fernandina ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Site Capacity	Modeling with field verification/ calibration	COE/ Site Users	Determine dispersiveness of the site	As determined by SMMP Team	Maintenance Volumes exceed estimated capacity	Continue to use site without restrictions	-Restrict disposal volumes -Enlarge site or designate additional site
					New Work Volumes exceed estimated capacity	Continue to use site without restrictions	-Enlarge site or designate additional site for new work
Monitor Bathymetric Trends & Short Term Fate	Bathymetry	Site User	Determine the extent of the disposal mound and major bathymetric changes	Pre and post disposal	Disposal mound occurs outside ODMDS boundaries	Continue Monitoring	-Modify disposal method/placement -Restrict Disposal Volumes
Long Term Fate and Environmental Effects Monitoring	Sediment Mapping (Gamma/CS^3)	EPA/ COE/ Site User	Determine areal influence of dredged material	As determined by SMMP Team	Communities under the influence of dredged material outside the site have significant differences in diversity/ richness/biomass from those not under dredged material influence after one year recovery period.	Discontinue monitoring unless disposal quantities, type of material or frequency of use significantly changes	-Limit quantity of dredged material to prevent impacts outside boundaries -Create berms to restrict dredged material movement -Cease site use
	Benthic Survey	EPA/ COE/ Site User	Determine impact of dredged material on benthic community	As determined by SMMP Team			

Table 4 (Continued). Fernandina ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Insure Safe Navigation Depth	Bathymetry	Site User	Determine height of mound and any excessive mounding	Pre and Post disposal	Mound height > -25 feet m.l.l.w.	Continue Monitoring	-Modify disposal method/placement -Restrict disposal volumes
Compliance	Disposal Site Use Records	COE/ Site User	-Insure management requirements are being met -To assist in site monitoring	Daily during the project	Disposal records required by SMMP are not submitted or are incomplete	Continue Monitoring	-Restrict site use until requirements are met
					Review of records indicates a dump occurred outside ODMDS boundary	Continue Monitoring	-Notify EPA Region 4/COE, and investigate why egregious dump(s) occurred. Take appropriate enforcement action.
					Review of records indicates a dump occurred in the ODMDS but not in target area	Continue Monitoring	-Direct placement to occur as specified.

Reporting and Data Formatting. The user will be required to prepare daily reports of operations and submit to the COE a monthly report of operations for each month or partial month's work. Disposal monitoring data shall be delivered to the COE on a weekly basis. The user is also required to notify the COE and the EPA within 24 hours if a violation of the permit and/or contract conditions related to MPRSA Section 103 or SMMP requirements occur during disposal operations.

Disposal summary reports shall be provided by the COE to EPA within 90 days after project completion. These should consist of dates of disposal, volume of disposal, approximate location of disposal and pre- and post-disposal bathymetric survey results in both hard and electronic formats. Other disposal monitoring data shall be made available upon request. In addition, EPA (Ocean Dumping Coordinator) should be notified by the Corps of Engineers 15 days prior to the beginning of a dredging cycle or project disposal.

Material tracking, disposal effects monitoring and any other data collected shall be coordinated with and be provided to SMMP team members and federal and state agencies as appropriate. Data will be provided to other interested parties requesting such data to the extent possible. Data will be provided for all surveys in a report generated by the action agency. The report should indicate how the survey relates to the SMMP and previous surveys at the Fernandina ODMDS and should provide data interpretations, conclusions, and recommendations, and should project the next phase of the SMMP.

MODIFICATION OF THE FERNANDINA ODMDS SMMP

Should the results of the monitoring surveys or valid reports from other sources indicate that continued use of the ODMDS would lead to unacceptable effects, then the ODMDS SMMP will be modified to mitigate the adverse impacts. The SMMP will be reviewed and revised if appropriate at a minimum of every ten years. The SMMP will be reviewed and updated as necessary if site use changes significantly. For example, the SMMP will be reviewed if the quantity or type of dredged material placed at the site changes significantly or if conditions at the site indicate a need for revision.

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